

IN THE CLAIMS:

Please CANCEL claims 7, 10 and 22 without prejudice to or disclaimer of the recited subject matter.

Please AMEND claims 1-5, 9, 12-20, 24, 25, 27 and 29-31, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1. (Currently Amended) An X-ray exposure apparatus for exposing a substrate to a pattern in an atmosphere of ~~a second gas~~ helium, said apparatus comprising:
  - a chamber;
  - a substituting unit for substituting a gas in said chamber from ~~a first gas to the second gas~~ nitrogen to helium;
  - a stage, provided in said chamber, which holds and moves the substrate;
  - a static pressure gas bearing, provided in said chamber, which supports said stage;
  - a gas supply unit for supplying the ~~second gas~~ helium to said static pressure gas bearing;
  - a control unit for controlling said gas supply unit to supply the ~~second gas~~ helium to said static pressure gas bearing when said substituting unit substitutes the gas in said chamber from the ~~first gas~~ nitrogen to the ~~second gas~~ helium; and
  - a bearing exhaust unit for exhausting the gas of said static pressure gas bearing.

2. (Currently Amended) An apparatus according to claim 1, further comprising an evacuating unit for evacuating said chamber by exhausting the gas therefrom when substituting the gas in said chamber from the first gas nitrogen to the second gas helium.

3. (Currently Amended) An apparatus according to claim 2, wherein said gas supply unit supplies the second gas helium to said static pressure gas bearing before a start of exhausting the gas in said chamber.

4. (Currently Amended) An apparatus according to claim 2, wherein said gas supply unit supplies the second gas helium to said static pressure gas bearing simultaneously with exhausting of the gas in said chamber.

5. (Currently Amended) An apparatus according to claim 2, wherein said gas supply unit supplies the second gas helium to said static pressure gas bearing after a start of exhausting the gas in said chamber.

6. (Previously Presented) An apparatus according to claim 2, wherein said evacuating unit and the bearing exhaust unit are the same.

7. (Canceled)

8. (Canceled)

9. (Currently Amended) An X-ray exposure apparatus for exposing a substrate to a pattern in an atmosphere of ~~a second gas~~ helium, said apparatus comprising:

a chamber;

a substituting unit for exhausting ~~a first gas~~ nitrogen from said chamber and

introducing the ~~second gas~~ helium into said chamber;

a stage, provided in said chamber, which holds and moves the substrate;

a static pressure gas bearing, provided in said chamber, which supports said stage;

a gas supply pipe for supplying a working gas to said static pressure gas bearing;

and

a bearing exhaust unit for exhausting a gas of said static pressure gas bearing through said gas supply pipe.

10. (Canceled)

11. (Canceled)

12. (Currently Amended) An X-ray exposure apparatus for exposing a substrate to a pattern in an atmosphere of ~~a second gas~~ helium, said apparatus comprising:

a chamber;

a positioning unit provided in said chamber to position the substrate;

a substituting unit for substituting the ~~second gas~~ helium for a ~~first gas~~ nitrogen in said chamber;

a static pressure gas bearing, provided in said chamber, for supporting said positioning unit;

a gas supply unit for supplying a working gas to said static pressure gas bearing;

a control unit for controlling said gas supply unit to supply the ~~second gas~~ helium to said static pressure gas bearing when substituting the gas in said chamber from the ~~first gas~~ nitrogen to the ~~second gas~~ helium; and

a bearing exhaust unit for exhausting the gas of said static pressure gas bearing.

13. (Currently Amended) An apparatus according to claim 12, wherein said ~~exposure~~ apparatus is an X-ray exposure apparatus employing employs a synchrotron radiation beam as an exposure beam.

14. (Currently Amended) An X-ray exposure apparatus for exposing a substrate to a pattern in an atmosphere of a ~~second gas~~ helium, said apparatus comprising:

a chamber;

a positioning unit provided in said chamber to position the substrate;

a substituting unit for exhausting a ~~first gas~~ nitrogen from said chamber and introducing the ~~second gas~~ helium into said chamber;

a static pressure gas bearing, provided in said chamber, for supporting said positioning unit;

a gas supply pipe for supplying a working gas to said static pressure gas bearing; and

a bearing exhaust unit for exhausting a gas in said static pressure gas bearing through said gas supply pipe.

15. (Currently Amended) An apparatus according to claim 14, wherein said ~~exposure apparatus is an X-ray exposure apparatus using uses a synchrotron radiation beam as an exposure beam.~~

16. (Currently Amended) An atmosphere substituting method of substituting an atmosphere in a chamber of an X-ray exposure apparatus for exposing a substrate to a pattern in an atmosphere of ~~a second gas~~ helium, the X-ray exposure apparatus having a stage, provided in the chamber, which holds and moves the substrate, and a static pressure gas bearing, provided in the chamber, which supports the stage, said method comprising:

a substituting step of substituting a gas in the chamber from ~~a first gas~~ nitrogen to the ~~second gas~~ helium;

a bearing exhaust step of exhausting, during said substituting step, the ~~first gas~~ nitrogen of the static pressure gas bearing in the chamber; and

a gas supply step of supplying the ~~second~~ gas helium to the static pressure gas bearing with a gas supply unit.

17. (Currently Amended) A method according to claim 16, further comprising an evacuating step of evacuating the chamber by exhausting the gas therefrom when substituting the gas in the chamber from the ~~first~~ gas nitrogen to the ~~second~~ gas helium.

18. (Currently Amended) A method according to claim 17, wherein the ~~second~~ gas helium is supplied in said gas supply step before a start of exhausting the gas in said evacuating step.

19. (Currently Amended) A method according to claim 17, wherein the ~~second~~ gas helium is supplied in said gas supply step simultaneously with exhausting of the gas in said evacuating step.

20. (Currently Amended) A method according to claim 17, wherein the ~~second~~ gas helium is supplied in said gas supply step after a start of exhausting the gas in said evacuating step.

21-23. (Canceled)

24. (Currently Amended) A device manufacturing method comprising a substituting step of substituting a gas in a chamber, incorporating a positioning apparatus supported by a static pressure gas bearing, from a first gas nitrogen to a second gas helium, and an X-ray exposure step of positioning a substrate with the positioning apparatus and exposing the substrate to a pattern after said substituting step, said method comprising:

a bearing exhaust step of exhausting, during said substituting step, the first gas nitrogen of the static pressure gas bearing; and  
a gas supply step of supplying the second gas helium to the static pressure gas bearing with a gas supply unit.

25. (Currently Amended) A method according to claim 24, further comprising an evacuating step of evacuating the chamber by exhausting the gas therefrom when substituting the gas in said substituting step, wherein the second gas helium is supplied in said gas supply step before a start of, simultaneously with, or after a start of exhausting the gas in said evacuating step.

26. (Canceled)

27. (Currently Amended) A method according to claim 24, wherein the gas is exhausted in said bearing exhaust step after the second gas helium is supplied in said gas supply step.

28. (Original) A method according to claim 25, wherein in said bearing exhaust step, the gas of the static pressure gas bearing is exhausted through a pipe connected thereto, the gas being exhausted simultaneously with exhausting in said evacuating step.

29. (Currently Amended) A method according to claim 28, wherein an exposure in said X-ray exposure step is performed by using a synchrotron radiation beam, and the second gas is helium beam.

30. (Currently Amended) A device manufacturing method comprising a substituting step of substituting a gas in a chamber, incorporating a positioning apparatus supported by a static pressure gas bearing, by exhausting a first gas nitrogen from the chamber and introducing a second gas helium into the chamber, and an X-ray exposure step of positioning a substrate with the positioning apparatus and exposing the substrate to a pattern after said substituting step, said method comprising:

a bearing exhaust step of exhausting the gas of the static pressure gas bearing through a pipe connected thereto simultaneously with exhausting the gas in said substituting step.

31. (Currently Amended) A method according to claim 30, wherein an exposure in said X-ray exposure step is performed by using a synchrotron radiation beam, and the second gas is helium beam.